

CLAIMS

1. A method of determining a route of an application over a plurality of nodes in a network, comprising:
configuring each one of a sequence of application packets being
5 transmitted over an application port to expire at one of a succession of nodes that form an application route from a source to a destination; and
receiving an error notification from each node at which an application packet expires to identify that node in the application route.
- 10 2. The method of claim 1, wherein configuring each application to expire further comprises configuring a time-to-live (TTL) field within each application packet.
3. The method of claim 2, wherein the TTL field is
15 decremented at each successive node in the application route until it reaches zero.
4. The method of claim 3, wherein receiving an error notification occurs after the TTL in an application packet has reached zero.
- 20 5. The method of claim 2, wherein configuring the TTL field further includes incrementing by one each TTL field in successive application packets.
6. The method of claim 1, further comprising setting the
25 application port.
7. The method of claim 1, wherein the error notification is an ICMP "time exceeded" message.
- 30 8. The method of claim 1, wherein each application packet is transmitted according to the transmission control protocol (TCP).

9. The method of claim 8, further comprising receiving a SYN/ACK message to indicate that the destination node has been reached by an application packet in the sequence, and the entire application route has been
5 discovered.

10. The method of claim 1, wherein each application packet is transmitted according to the user datagram protocol (UDP).

10 11. The method of claim 10, further comprising setting the application port.

12. The method of claim 11, further comprising changing the application port to the UDP ephemeral port when no error notification is received
15 after transmission of an application packet.

13. The method of claim 12, further comprising configuring an application packet being transmitted over the UDP ephemeral port to expire at the same node at which the previous application packet was set to expire.
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14. The method of claim 13, further comprising receiving, in response to the application packet transmitted over the UDP ephemeral port, an ICMP "destination unreachable" message to indicate that the destination port is not accessible, but that the destination host has been reached.
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15. A system for determining a route of an application over a plurality of nodes, comprising:

logic for configuring each one of a sequence of application packets being transmitted over an application port to expire at one of a succession of nodes
30 that form an application route from a source to a destination; and

logic for processing an error notification received from each node at which an application packet expires to identify that node in the application route.

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